

Remarks

Claims 1-18 are pending.

Claims 1 and 3 are amended.

Claims 2, 4, 5, 7-14 and 16-18 are original.

Claims 6 and 15 are as previously presented.

Claim 1 is amended for clarity by deleting the term 'with a base' from the end of the claim and by inserting the phrase 'with a base, which inorganic additive is' immediately following the term 'an inorganic additive' at the beginning of line 3.

Claim 3 is amended for clarity by inserting the phrase 'of either the metal alcoholate or metal halide' immediately following the term 'the metal' in line 1

Support is inherent in the claims. No new matter is added.

Rejections

Claims 1-17 are rejected under 35 USC 112 second paragraph as being indefinite because it is unclear to which part of the claim the limitation "with a base" refers.

In the coatings of the invention, sol particles are formed by hydrolysis using a base, and the dispersion thus obtained (component b) which contains the base, is directly mixed with the binder (a). This process is illustrated by present examples 1-5. The base is therefore a constitutional part of the present composition, and not a mere process parameter in the sol preparation. The original wording was meant to convey that the composition comprises the binder of a, the inorganic additive of b, and the base. Applicants believe that the instant amendments clarify the issue.

Claim 3 is rejected under 35 US 112 second paragraph as there is confusion as to what the term "metal" referred to. Applicants believe that the instant amendments clarify that the metal of claim 3 is the metal of either the metal alcoholate or metal halide.

Applicants respectfully submit that the 35 USC 112 second paragraph rejections of claims 1-17 are addressed and are overcome and kindly ask that the rejections be withdrawn.

Claims 1, 2, 4-10 and 12-18 are rejected under 35 USC 102(b) as being anticipated by Das et. al., US 4,526,910. Das discloses a coating that contains silica particles obtained by hydrolyzing tetraethylorthosilicate with ammonia in alcohols.

Applicants respectfully traverse the rejections.

Das discloses a number of essentially solvent based coating compositions containing non-organomodified inorganic microparticles, e.g., colloidal silica, which particles, when added, have an average particle diameter from 1 to 150 nm, see col. 7, lines 6-8. However, as mentioned in Das, the addition of nano-scaled particles to a resin system does not automatically lead to a system containing the same nano-scaled particles, but often result in agglomeration and particle sizes much larger than in the added material, col. 7, lines 40-41. Das emphasizes the importance of imparting stability to the particle dispersion, col. 7, lines 47-54, yet Das is silent on the means required, i.e. the steps between preparation of the particles, potential stabilization of dispersions obtained, and final incorporation into the resin composition.

Applicants respectfully point out that all of the examples in Das prepare acidic silica materials. Even in example 5, wherein ethyl silicate is treated with ammonia, the ammonia is removed and the material acidified with HCl to a pH of 2.4.

As stated above, the instant invention explicitly contains a base as part of the coating composition which is added along with the nano-particles. Das adds nanoparticles which are treated with acid and nowhere discloses a coating composition comprising the base of the instant invention.

Applicants therefore respectfully assert that no anticipation exists and kindly ask that the rejections of claims 1, 2, 4-10 and 12-18 under 35 USC 102(b) over Das et. al., US 4,526,910 be withdrawn.

Claims 1-6, 12, 13, 17 and 18 are rejected under 35 USC 102(b) as being anticipated by Ryang et. al., US 5,962,608 which discloses a polymer prepared using metaloxide sols.

Applicants respectfully traverse the rejections.

Applicants respectfully aver that as for Das above, Ryang et. al., US 5,962,608 fails to disclose a coating composition that includes a base. The Action concludes from col. 10, lines 25-29 of '698, that the final resin composition may contain a base since the passage cited describes the use of epoxy resins which have been "solubilized" by neutralization with an amine. The amines listed in this passage, however, are explicitly and exclusively recommended for the neutralization of an acidic resin; thus, any resulting resin composition will contain an ammonium salt formed during the neutralization reaction and certainly not the free base of the instant invention.

Applicants therefore respectfully assert that no anticipation exists and kindly ask that the rejections of claims 1, 2, 4-10 and 12-18 under 35 USC 102(b) over Das et. al., US 4,526,910 be withdrawn.

Claims 10 and 11 are rejected under 35 USC 103(a) as being obvious over Ryang et. al., US 5,962,608 and Ryang et. al., US 6,169,119. Ryang '119 is cited for teaching the polymers of Ryang '608 in resins useful in coatings.

Applicants respectfully traverse the rejections.

Applicants respectfully aver that the additional Ryang reference fails to disclose a coating composition that includes a base and that the limits of the instant claims are not met. Applicants therefore and kindly ask that the rejections of claims 10 and 11 under 35 USC 103(a) over Ryang et. al., US 5,962,608 and Ryang et. al., US 6,169,119 be withdrawn.

Summarizing the above, Applicants respectfully aver that the instantly claimed invention is well novel and non-obvious in the light of the art cited. In the coatings of the invention, sol particles are formed by hydrolysis, and the dispersion thus obtained (component b), containing a base, is directly mixed with the binder (a). This process is illustrated by present examples 1-5.

Applicants can find no teaching in the art to directly incorporate into the coating resin the product obtained from the sol-gel process which still contains the base used in hydrolysis. Applicants further respectfully aver that It is therefore surprising to find that a well curable coating with high gloss and scratch resistance may be obtained using such a particle dispersion containing a base in the coating.

Applicants respectfully submit that all rejections have been addressed and are overcome and kindly ask that they be withdrawn and that claims 1-18 be found allowable. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

Respectfully submitted,



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